REMARKS

ALLOWABLE SUBJECT MATTER

It is gratefully acknowledged that the Examiner considers the subject matter of claims 5-19 as being allowable and the subject matter of claim 4 as being allowable if rewritten in independent form. Applicants have not yet rewritten claim 4 in independent form since it is felt that claim 3, from which it depends, is also allowable.

REJECTION UNDER 35 U.S.C. § 103

Claims 1-3 stand rejected under 35 U.S.C § 103 as being obvious over Saito et al. (U.S. published application 2002/0140711) in view of Naito (U.S. published application 2002/0126106) and Poor (US published application 2004/0131279). This rejection is respectfully traversed.

The Examiner states that Saito et al. shows a driving circuit in a liquid display device having a timing controller for generating a polarity inverting signal and at least one digital signal and a low color scale driving circuit for generating at least one analog signal in response to the polarity inverting signal and the digital signal. The Examiner feels it is well known for image signals to be analog. The Examiner mentions that Saito et al. fails to recite at least one digital signal and a low color scale driving circuit for generating at least one analog signal in response to the polarity inverting signal and digital signal.

The Examiner relies on Naito to show at least one digital signal in a low color scale driving circuit for generating at least one analog signal in response to the polarity inverting signal and the digital signal. The Examiner also admits that Saito et al. fails to recite specifically a low color scale. The Examiner relies on Poor to recite specifically a low color scale. The Examiner feels that it would have been obvious to incorporate the teachings of Poor in Saito et al. to normalize the color scale for a display by detecting the highest and lowest scale color values and determining normalization parameters therefrom.

The present invention includes a timing controller, a source driver and a low color scale driver circuit. The timing controller receives an image data and outputs a digital image signal. The timing controller also outputs a polarity-inverting signal. The source driver receives the digital image signal and generates an analog image signal. The low color scale driving circuit delivers another analog signal in response to the polarity-inverting signal and the digital signal from the timing controller. The low color scale driving circuit is described in paragraph 0027 of the present specification. When the system operates with a lower color scale, the low color scale circuit is used to deliver the analog signal. The object of doing this is to achieve lower power consumption.

The Saito reference provides an image display device for displaying an aspect ratio, which avoids difficulty in viewing the image without increasing the size of the image display device. However, the objects and results of the Saito reference are different from those of the present invention. The Saito reference does not disclose a timing controller, a source driving circuit and a polarity inverting signal as are well known in the liquid crystal device field. Although Saito et al. discloses a timing circuit and a CPU to control the processing timing for the combined circuit, it does not specify that the timing circuit, the CPU and the combined circuit relate to a timing controller and source driving circuit for a liquid crystal display. Further, Saito shows an inverted signal which is inverted through a NOT gate, but is not a polarity-inverting signal as is known in the LCD art.

Furthermore, Saito et al. does not disclose a low color scale circuit. Thus, Saito et al. does not disclose an additional driving circuit, which delivers the analog signal when the system operates within the lower color scale.

The Naito reference provides a display device, which yields a brightness and contrast of an electro-optical device, which are close to the best characteristics that the device can offer. This reference discloses a source driving circuit with a gamma correction. However, the Naito reference and the present invention are different in both objects and result. Further, the Naito

reference does not teach an additional driving circuit which delivers an analog signal when the system operates with a lower color scale.

Thus, both the Saito et al. reference and the Naito reference do not teach the use of an additional driving circuit delivering the analog signal when the system operates with the lower color scale. Also, neither reference is used to save power consumption. Thus, applicant submits that even if these two references are combined, they still do not teach the features presently recited in claims 1 and 3. Furthermore, the applicant submits that because of the different teachings of Saito et al. and Naito, their combination will not be obvious to one typically skilled in the art.

In regard to claim 2, the Naito reference discloses transistors in the pixel array but not in the driving circuit. In the present invention, the transistors are implemented in the low color scale driving circuit. Since the Naito reference does not teach the implementation of transistors in the driving circuit, the combination of Saito and Naito does not meet the terms of claim 2. Accordingly, the applicant submits that claim 2 is further allowable.

The Poor reference relates to the general field of optical scanning to collect data and digital image from documents, and more particularly to enhanced methods and apparatus for locating, identifying and interpreting such data and images. These are most probably utilized in the scoring of standardized assessment tests. However, the Poor reference does not disclose how to implement the outputting of analog signals in response to digital signals. Thus, the present invention has different applications and results from that of the Poor reference.

Thus, even if the Poor reference is combined with Saito et al. and Naito, the combination will still not show an additional driving circuit which delivers an analog signal when the system operates with a lower color scale and also does not relate to the saving of power consumption. In view of this, applicant submit that all of the claims remain allowable over this three way combination of references.

CONCLUSION

In view of the above remarks, it is believed that the claims clearly distinguish over the patents relied on by the Examiner, either singly or in combination. In view of this, further consideration of the rejections and allowance of all the claims, are respectfully requested.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone Robert F. Gnuse at (703) 205-8067 in the Washington, D.C. area.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-1448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly extension of time fees.

Dated: August 18, 2006

Respectfully submitted,

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